EMEC 445: Design and fabrication of an absorber system demonstrator

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The CapStone team will develop a demonstrator for EMEC 445: Vibrations. Wind induced vibration can cause electrical transmission lines to fail. A mass tuned damper (stockbridge or dumbbell damper) attached to transmission lines reduce the oscillation. The Stockbridge damper is presently the most common type of transmission line damper and consists of two weights attached to the cables close to the post. The goal of this project is the development of a demonstrator to study the dynamics of a Stockbridge damper. The following criteria need to be fulfilled:

* Design of a Stockbridge damper for a tabletop demonstrator
* Design of tabletop environment (‘wind maker’, posts, cable, oscillation measurement, … )
* Define dynamic response study
* Characterize the damper on a vibration table
* Fabricate the demonstrator
* Characterize system dynamics of the demonstrator
* Write Lab-description of setup for use in EMEC 445
* …